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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/796,343	03/10/2004	Chu-Jung Shih	08703.0005-01	1988
22852	7590	10/18/2005	EXAMINER	
FINNEGAN, HENDERSON, FARABOW, GARRETT & DUNNER LLP 901 NEW YORK AVENUE, NW WASHINGTON, DC 20001-4413			GHYKA, ALEXANDER G	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 10/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

EK

<b>Office Action Summary</b>	<b>Application No.</b> 10/796,343	<b>Applicant(s)</b> SHIH ET AL.	
	<b>Examiner</b> Alexander G. Ghysa	<b>Art Unit</b> 2812	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

ALEXANDER GHYKA  
PRIMARY EXAMINER

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### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____.  |

### **DETAILED ACTION**

The Applicants' response of 8/12/2005 has been considered and entered in the record. The Applicants' arguments have been considered, but they are not persuasive for the reasons as discussed below.

#### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

**Claims 1-20 are rejected under 35 U.S.C. 102(e) as being anticipated by Hamada et al (US 6,329,269) for the reasons as discussed in the previous Office action.**

The present Claims generally require a method comprising providing a substrate; providing a layer of insulating material over the substrate; depositing a layer of amorphous silicon over the layer of insulating material, crystallizing the layer of amorphous silicon in an oxygen environment for a reduced surface roughness on the layer of crystallized silicon, treating the layer of polysilicon to change the properties of a surface of the layer of polysilicon and smoothing the surface of the layer of polysilicon .

Hamada et al disclose a method of fabricating a semiconductor device which includes forming an amorphous semiconductor film on a substrate and oxidizing the surface of the amorphous semiconductor film in an atmosphere containing water vapor and oxygen. See the abstract . Hamada et al disclose that the oxygen provides a reduction in surface roughness. See Figures 3 and 19 and column 2, lines 15-25. Moreover, Hamada et al disclose that the amorphous silicon is formed on an insulating layer on a substrate. See column 3, lines 45-55 and column 8, lines 40-45. As required in the present claims, the semiconductor device of Hamada et al can be used in a liquid crystal device. See column 8, lines 40-45. With respect to Claims 4 –8 and 13-15, Hamada et al discloses the simultaneous crystallization of the amorphous silicon film and formation of a silicon oxide film on the formed polycrystalline film. Hamada et al disclose controlling the duration of the heat treatment in an oxygen environment, which would inherently control the thickness of the oxide layer. See column 12, lines 40-60. With respect to Claims 2 and 13, Hamada et al disclose the use of ozone in the heat treatment in an oxygen environment. See column 16, lines 60-65. With respect to Claims 3, 6, 9, 12 and 18, Hamada et al disclose etching the oxide layer with hydrofluoric acid. See Column 15, lines 45-55. Therefore, Claims 1-20 are anticipated by the Hamada et al reference.

### ***Response to Applicants' Arguments***

Applicants argue that Claim 1 recites “crystallizing the layer of amorphous silicon to form a layer of polysilicon” and “treating the layer of polysilicon to change the properties of a

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surface of the layer of polysilicon” as two separate steps, and thus Hamada et al teaching of a single step of a heat treatment in an oxygen environment clearly cannot anticipate these two separate steps. The Examiner maintains that the crystallization is not instant, in other words at a certain time there is partial crystallization, which comprises in the formation of a layer of polysilicon. As the crystallization process continues the layer of polysilicon is further “treated to change its properties”, in other words oxidized. The claims as written simply do not require sequential steps, as evidenced by the absence of language such as “following”, which would indicate a sequence. The claims merely require the presence of the afore mentioned steps. Therefore, the Claims are anticipated.

### ***Conclusion***

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander G. Ghyka whose telephone number is (571) 272-1669. The examiner can normally be reached on Monday through Thursday during general business hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Lebentritt can be reached on (571) 272-1873. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

AGG  
October 15, 2005

ALEXANDER GHYKA  
PRIMARY EXAMINER

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